1632  
BOX 566

## IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant : Stephen James Russell et al.

Art Unit : 1632

Serial No. : 09/667,947

Examiner : Shin-Lin Chen

Filed : September 22, 2000

Title : THERAPEUTIC METHODS AND COMPOSITIONS USING VIRUSES OF THE  
RECOMBINANT PARAMYXOVIRIDAE FAMILY

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## MAIL STOP SEQUENCE

Commissioner for Patents

P.O. Box 1450

Alexandria, VA 22313-1450

TECH CENTER 1600/2900

TRANSMITTAL LETTER

The following correspondence relating to this application is enclosed:

1. Response to Notice to Comply (2 pages);
2. Copy of Notice to Comply (10 pages);
3. Paper Copy of Substitute Sequence Listing (10 pages);
4. Verified Statement Under 37 CFR § 1.821(f);
5. Computer Readable Diskette; and
6. Post card.

Please apply any charges not covered, or any credits, to Deposit Account No. 06-1050.

Respectfully submitted,

Date:

5/20/03

Monica McCormick Graham, Ph.D.

Reg. No. 42,600

Fish &amp; Richardson P.C., P.A.

60 South Sixth Street

Suite 3300

Minneapolis, MN 55402

Telephone: (612) 335-5070

Facsimile: (612) 288-9696

60142250.doc

## CERTIFICATE OF MAILING BY FIRST CLASS MAIL

I hereby certify under 37 CFR §1.8(a) that this correspondence is being deposited with the United States Postal Service as first class mail with sufficient postage on the date indicated below and is addressed to the Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

May 20, 2003

Date of Deposit

Signature

Judith A. Wasilkus

Typed or Printed Name of Person Signing Certificate



AF/1632

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant : Stephen James Russell et al. Art Unit : 1632  
Serial No. : 09/667,947 Examiner : Shin-Lin Chen  
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Title : THERAPEUTIC METHODS AND COMPOSITIONS USING VIRUSES OF THE  
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Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

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TRANSMITTAL LETTER

The following correspondence relating to this application is enclosed:

1. Amendment and Response to Office Action mailed February 20, 2003 (8 pages);
2. Copy of Peng et al., Nature Medicine article (5 pages);
3. Copy of Peng et al., Cancer Research article (7 pages); and
4. Post card.

Please apply any charges not covered, or any credits, to Deposit Account No. 06-1050.

Respectfully submitted,

Date: \_\_\_\_\_

5/20/03

Monica McCormick Graham, Ph.D.  
Reg. No. 42,600

Fish & Richardson P.C., P.A.  
60 South Sixth Street  
Suite 3300  
Minneapolis, MN 55402  
Telephone: (612) 335-5070  
Facsimile: (612) 288-9696

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May 20, 2003

Date of Deposit

Signature

Judith A. Wasilkus

Typed or Printed Name of Person Signing Certificate

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant : Stephen James Russell et al.      Art Unit : 1632  
Serial No. : 09/667,947      Examiner : Shin-Lin Chen  
Filed : September 22, 2000  
Title : THERAPEUTIC METHODS AND COMPOSITIONS USING VIRUSES OF THE  
RECOMBINANT PARAMYXOVIRIDAE FAMILY

TECH CENTER 1600/2900

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Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

RESPONSE TO NOTICE TO COMPLY WITH REQUIREMENTS  
FOR PATENT APPLICATIONS CONTAINING  
NUCLEOTIDE AND/OR AMINO ACID SEQUENCES

In response to the communication dated February 20, 2003 (copy enclosed), Applicants submit herewith a Sequence Listing in computer readable form as required by 37 CFR §1.824. In addition, Applicants submit a substitute Sequence Listing as required under 37 CFR §1.823(a) and a statement under 37 CFR §1.821(f). In the substitute sequence listing, the <213> section recites "artificial sequence" in place of "fragment." The substitute specification also provides the information for the <220> and <223> sections. No new matter has been introduced.

Applicants respectfully request entry of the substitute paper copy and computer readable copy of the Sequence Listing filed herewith in the instant application.

CERTIFICATE OF MAILING BY FIRST CLASS MAIL

I hereby certify under 37 CFR §1.8(a) that this correspondence is being deposited with the United States Postal Service as first class mail with sufficient postage on the date indicated below and is addressed to the Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

May 20, 2003

Date of Deposit

Signature

*Judith A. Wasilkus*

Judith A. Wasilkus

Typed or Printed Name of Person Signing Certificate

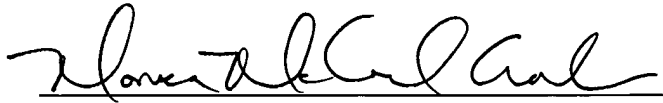
Applicant : Stephen James Russell et al.  
Serial No. : 09/667,947  
Filed : September 22, 2000  
Page : 2 of 2

Attorney's Docket No.: 07039-298001

Please apply any charges or credits to Deposit Account No. 06-1050.

Respectfully submitted,

Date: 5/20/03



Monica McCormick Graham, Ph.D.  
Reg. No. 42,600

Fish & Richardson P.C., P.A.  
60 South Sixth Street  
Suite 3300  
Minneapolis, MN 55402  
Telephone: (612) 335-5070  
Facsimile: (612) 288-9696

60142192.doc

**NOTICE TO COMPLY WITH REQUIREMENTS FOR PATENT APPLICATIONS CONTAINING NUCLEOTIDE SEQUENCE AND/OR AMINO ACID SEQUENCE DISCLOSURES**

Applicant must file the items indicated below within the time period set the Office action to which the Notice is attached to avoid abandonment under 35 U.S.C. § 133 (extensions of time may be obtained under the provisions of 37 CFR 1.136(a)).

The nucleotide and/or amino acid sequence disclosure contained in this application does not comply with the requirements for such a disclosure as set forth in 37 C.F.R. 1.821 - 1.825 for the following reason(s):



- ☒ 1. This application clearly fails to comply with the requirements of 37 C.F.R. 1.821-1.825. Applicant's attention is directed to the final rulemaking notice published at 55 FR 18230 (May 1, 1990), and 1114 OG 29 (May 15, 1990). If the effective filing date is on or after July 1, 1998, see the final rulemaking notice published at 63 FR 29620 (June 1, 1998) and 1211 OG 82 (June 23, 1998).
- ☐ 2. This application does not contain, as a separate part of the disclosure on paper copy, a "Sequence Listing" as required by 37 C.F.R. 1.821(c).
- ☐ 3. A copy of the "Sequence Listing" in computer readable form has not been submitted as required by 37 C.F.R. 1.821(e).
- ☒ 4. A copy of the "Sequence Listing" in computer readable form has been submitted. However, the content of the computer readable form does not comply with the requirements of 37 C.F.R. 1.822 and/or 1.823, as indicated on the attached copy of the marked -up "Raw Sequence Listing."
- ☐ 5. The computer readable form that has been filed with this application has been found to be damaged and/or unreadable as indicated on the attached CRF Diskette Problem Report. A Substitute computer readable form must be submitted as required by 37 C.F.R. 1.825(d).
- ☐ 6. The paper copy of the "Sequence Listing" is not the same as the computer readable form of the "Sequence Listing" as required by 37 C.F.R. 1.821(e).
- ☐ 7. Other: \_\_\_\_\_

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**Applicant Must Provide:**

- ☒ An initial or substitute computer readable form (CRF) copy of the "Sequence Listing".
- ☒ An initial or substitute paper copy of the "Sequence Listing", as well as an amendment directing its entry into the specification.
- ☒ A statement that the content of the paper and computer readable copies are the same and, where applicable, include no new matter, as required by 37 C.F.R. 1.821(e) or 1.821(f) or 1.821(g) or 1.825(b) or 1.825(d).

For questions regarding compliance to these requirements, please contact:

For Rules Interpretation, call (703) 308-4216

For CRF Submission Help, call (703) 308-4212

PatentIn Software Program Support

Tchnical Assistance.....703-287-0200

To Purchase PatentIn Software.....703-306-2600

**PLEASE RETURN A COPY OF THIS NOTICE WITH YOUR REPLY**

## RAW SEQUENCE LISTING ERROR REPORT

The Biotechnology Systems Branch of the Scientific and Technical Information Center (STIC) detected errors when processing the following computer readable form:

Application Serial Number:

09/667,947

Source:

600

Date Processed by STIC:

01/67/2003

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JAN 23 2003

TECH CENTER 1600/2900

THE ATTACHED PRINTOUT EXPLAINS DETECTED ERRORS.

PLEASE FORWARD THIS INFORMATION TO THE APPLICANT BY EITHER:

- 1) INCLUDING A COPY OF THIS PRINTOUT IN YOUR NEXT COMMUNICATION TO THE APPLICANT, WITH A NOTICE TO COMPLY or,
- 2) TELEPHONING APPLICANT AND FAXING A COPY OF THIS PRINTOUT, WITH A NOTICE TO COMPLY

FOR CRF SUBMISSION QUESTIONS, PLEASE CONTACT MARK SPENCER, 703-306-4212

FOR SEQUENCE RULES INTERPRETATION, PLEASE CONTACT ROBERT WAX, 703-306-4216

PATENTIN 2.1 e-mail help: [patin21help@uspto.gov](mailto:patin21help@uspto.gov) or phone 703-306-4119 (R. Wax)

PATENTIN 3.0 e-mail help: [patin3help@uspto.gov](mailto:patin3help@uspto.gov) or phone 703-306-4119 (R. Wax)

TO REDUCE ERRORED SEQUENCE LISTINGS, PLEASE USE THE **CHECKER  
VERSION 3.1 PROGRAM**, ACCESSIBLE THROUGH THE U.S. PATENT AND  
TRADEMARK OFFICE WEBSITE. SEE BELOW FOR ADDRESS:

<http://www.uspto.gov/web/offices/pac/checker>

Applicants submitting genetic sequence information electronically on diskette or CD-Rom should be aware that there is a possibility that the disk/CD-Rom may have been affected by treatment given to all incoming mail.

Please consider using alternate methods of submission for the disk/CD-Rom or replacement disk/CD-Rom.

Any reply including a sequence listing in electronic form should NOT be sent to the 20231 zip code address for the United States Patent and Trademark Office, and instead should be sent via the following to the indicated addresses:

1. EFS-Bio (<<http://www.uspto.gov/efb/efs/downloads/documents.htm>>), EFS Submission User Manual - ePAVB)
2. U.S. Postal Service: U.S. Patent and Trademark Office, Box Sequence, P.O. Box 2327, Arlington, VA 22202
3. Hand Carry directly to:  
U.S. Patent and Trademark Office, Technology Center 1600, Reception Area, 7<sup>th</sup> Floor, Examiner Name, Sequence Information, Crystal Mall One, 1911 South Clark Street, Arlington, VA 22202  
Or  
U.S. Patent and Trademark Office, Box Sequence, Customer Window, Lobby, Room 1B03, Crystal Plaza Two, 2011 South Clark Place, Arlington, VA 22202
4. Federal Express, United Parcel Service, or other delivery service to: U.S. Patent and Trademark Office, Box Sequence, Room 1B03-Mailroom, Crystal Plaza Two, 2011 South Clark Place, Arlington, VA 22202

Revised 01/29/2002

## Raw Sequence Listing Error Summary

**ERROR DETECTED****SUGGESTED CORRECTION**SERIAL NUMBER: 09/667,947

ATTN: NEW RULES CASES: PLEASE DISREGARD ENGLISH "ALPHA" HEADERS, WHICH WERE INSERTED BY PTO SOFTWARE

- 1        Wrapped Nucleics  
    Wrapped Aminos      The number/text at the end of each line "wrapped" down to the next line. This may occur if your file was retrieved in a word processor after creating it. Please adjust your right margin to .3; this will prevent "wrapping."
- 2        Invalid Line Length      The rules require that a line not exceed 72 characters in length. This includes white spaces.
- 3        Misaligned Amino  
    Numbering      The numbering under each 5<sup>th</sup> amino acid is misaligned. Do not use tab codes between numbers; use space characters, instead.
- 4        Non-ASCII      The submitted file was not saved in ASCII(DOS) text, as required by the Sequence Rules. Please ensure your subsequent submission is saved in ASCII text.
- 5        Variable Length      Sequence(s)        contain n's or Xaa's representing more than one residue. Per Sequence Rules, each n or Xaa can only represent a single residue. Please present the maximum number of each residue having variable length and indicate in the <220>-<223> section that some may be missing.
- 6        PatentIn 2.0  
    "bug"      A "bug" in PatentIn version 2.0 has caused the <220>-<223> section to be missing from amino acid sequences(s)       . Normally, PatentIn would automatically generate this section from the previously coded nucleic acid sequence. Please manually copy the relevant <220>-<223> section to the subsequent amino acid sequence. This applies to the mandatory <220>-<223> sections for Artificial or Unknown sequences.
- 7        Skipped Sequences  
    (OLD RULES)      Sequence(s)        missing. If intentional, please insert the following lines for each skipped sequence:  
    (2) INFORMATION FOR SEQ ID NO:X: (insert SEQ ID NO where "X" is shown)  
    (i)        SEQUENCE CHARACTERISTICS: (Do not insert any subheadings under this heading)  
    (xi) SEQUENCE DESCRIPTION:SEQ ID NO:X: (insert SEQ ID NO where "X" is shown)  
    This sequence is intentionally skipped  
  
    Please also adjust the "(ii) NUMBER OF SEQUENCES:" response to include the skipped sequences.
- 8        Skipped Sequences  
    (NEW RULES)      Sequence(s)        missing. If intentional, please insert the following lines for each skipped sequence.  
    <210> sequence id number  
    <400> sequence id number  
    000
- 9        Use of n's or Xaa's  
    (NEW RULES)      Use of n's and/or Xaa's have been detected in the Sequence Listing.  
    Per 1.823 of Sequence Rules, use of <220>-<223> is MANDATORY if n's or Xaa's are present.  
    In <220> to <223> section, please explain location of n or Xaa, and which residue n or Xaa represents.
- 10   ✓   Invalid <213>  
    Response      Per 1.823 of Sequence Rules, the only valid <213> responses are: Unknown, Artificial Sequence, or scientific name (Genus/species). <220>-<223> section is required when <213> response is Unknown or is Artificial Sequence
- 11        Use of <220>      Sequence(s)        missing the <220> "Feature" and associated numeric identifiers and responses.  
    Use of <220> to <223> is MANDATORY if <213> "Organism" response is "Artificial Sequence" or "Unknown." Please explain source of genetic material in <220> to <223> section.  
    (See "Federal Register," 06/01/1998, Vol. 63, No. 104, pp. 29631-32) (Sec. 1.823 of Sequence Rules)
- 12        PatentIn 2.0  
    "bug"      Please do not use "Copy to Disk" function of PatentIn version 2.0. This causes a corrupted file, resulting in missing mandatory numeric identifiers and responses (as indicated on raw sequence listing). Instead, please use "File Manager" or any other manual means to copy file to floppy disk.
- 13        Misuse of n      n can only be used to represent a single nucleotide in a nucleic acid sequence. N is not used to represent any value not specifically a nucleotide.



1600

 Doc  
 comply  
 in Needle:

 RAW SEQUENCE LISTING  
 PATENT APPLICATION: US/09/667,947

 DATE: 01/07/2003  
 TIME: 16:31:43

 Input Set : A:\07039-298001.txt  
 Output Set: N:\CRF4\01072003\I667947.raw

4 <110> APPLICANT: Russell, Stephen James  
 5 Cattaneo, Roberto  
 6 Peng, Kah-Whye  
 7 Schneider, Urs  
 8 Murphy, Anthea L.  
 10 <120> TITLE OF INVENTION: Therapeutic methods and compositions  
 11 using viruses of the recombinant paramyxoviridae family  
 14 <130> FILE REFERENCE: 07039-298001  
 16 <140> CURRENT APPLICATION NUMBER: US 09/667,947  
 C--> 17 <141> **CURRENT FILING DATE: 2002-12-18**  
 19 <150> PRIOR APPLICATION NUMBER: US 60/155,873  
 20 <151> PRIOR FILING DATE: 1999-09-24  
 22 <160> NUMBER OF SEQ ID NOS: 49  
 24 <170> SOFTWARE: FastSEQ for Windows Version 4.0  
 26 <210> SEQ ID NO: 1  
 27 <211> LENGTH: 4  
 28 <212> TYPE: PRT  
 29 <213> ORGANISM: Fragment  
 31 <400> SEQUENCE: 1  
 32 Ile Glu Gly Arg  
 33 1  
 35 <210> SEQ ID NO: 2  
 36 <211> LENGTH: 4  
 37 <212> TYPE: PRT  
 38 <213> ORGANISM: Fragment  
 40 <220> FEATURE:  
 41 <221> NAME/KEY: VARIANT  
 42 <222> LOCATION: 2  
 43 <223> OTHER INFORMATION: Xaa = Any 20 amino acids  
 45 <400> SEQUENCE: 2

- invalid responses see error summary sheet  
 item 10

The type of errors shown exist throughout  
 the Sequence Listing. Please check subsequent  
 sequences for similar errors

W--> 46 Arg Xaa Lys Arg  
 47 1  
 49 <210> SEQ ID NO: 3  
 50 <211> LENGTH: 6  
 51 <212> TYPE: PRT  
 52 <213> ORGANISM: Fragment  
 54 <400> SEQUENCE: 3  
 55 Pro Leu Gly Leu Trp Ala  
 56 1 5  
 58 <210> SEQ ID NO: 4  
 59 <211> LENGTH: 6  
 60 <212> TYPE: PRT  
 61 <213> ORGANISM: Fragment



## RAW SEQUENCE LISTING

PATENT APPLICATION: US/09/667,947

DATE: 01/07/2003

TIME: 16:31:43

Input Set : A:\07039-298001.txt

Output Set: N:\CRF4\01072003\I667947.raw

63 <400> SEQUENCE: 4  
64 Tyr Glu Val Asp Gly Trp  
65 1 5  
67 <210> SEQ ID NO: 5  
68 <211> LENGTH: 7  
69 <212> TYPE: PRT  
70 <213> ORGANISM: Fragment  
72 <400> SEQUENCE: 5  
73 Val Asp Val Ala Asp Gly Trp  
74 1 5  
76 <210> SEQ ID NO: 6  
77 <211> LENGTH: 7  
78 <212> TYPE: PRT  
79 <213> ORGANISM: Fragment  
81 <400> SEQUENCE: 6  
82 Val Asp Gln Met Asp Gly Trp  
83 1 5  
85 <210> SEQ ID NO: 7  
86 <211> LENGTH: 6  
87 <212> TYPE: PRT  
88 <213> ORGANISM: Fragment  
90 <400> SEQUENCE: 7  
91 Leu Glu Val Asp Gly Trp  
92 1 5  
94 <210> SEQ ID NO: 8  
95 <211> LENGTH: 6  
96 <212> TYPE: PRT  
97 <213> ORGANISM: Fragment  
99 <400> SEQUENCE: 8  
100 Val Gln Val Asp Gly Trp  
101 1 5  
103 <210> SEQ ID NO: 9  
104 <211> LENGTH: 7  
105 <212> TYPE: PRT  
106 <213> ORGANISM: Fragment  
108 <400> SEQUENCE: 9  
109 Val Asp Gln Val Asp Gly Trp  
110 1 5  
112 <210> SEQ ID NO: 10  
113 <211> LENGTH: 4  
114 <212> TYPE: PRT  
115 <213> ORGANISM: Fragment  
117 <400> SEQUENCE: 10  
118 Arg Gly Leu Thr  
119 1  
121 <210> SEQ ID NO: 11  
122 <211> LENGTH: 17  
123 <212> TYPE: PRT  
124 <213> ORGANISM: Fragment

## RAW SEQUENCE LISTING

PATENT APPLICATION: US/09/667,947

DATE: 01/07/2003

TIME: 16:31:43

Input Set : A:\07039-298001.txt

Output Set: N:\CRF4\01072003\I667947.raw

126 <400> SEQUENCE: 11  
 127 Asn Phe Asp Leu Leu Lys Leu Ala Gly Asp Val Glu Ser Asn Pro Gly  
 128 1 5 10 15  
 129 Pro  
 132 <210> SEQ ID NO: 12  
 133 <211> LENGTH: 34  
 134 <212> TYPE: PRT  
 135 <213> ORGANISM: Fragment ✓  
 137 <400> SEQUENCE: 12  
 138 Met Ser Pro Gln Arg Asp Arg Ile Asn Ala Phe Tyr Lys Asp Asn Pro  
 139 1 5 10 15  
 140 His Pro Lys Gly Ser Arg Ile Val Ile Asn Arg Glu His Leu Met Ile  
 141 20 25 30  
 142 Asp Arg  
 145 <210> SEQ ID NO: 13  
 146 <211> LENGTH: 33  
 147 <212> TYPE: PRT  
 148 <213> ORGANISM: Fragment ✓  
 150 <400> SEQUENCE: 13  
 151 Arg Gly Arg Cys Asn Lys Lys Gly Glu Gln Val Gly Met Ser Arg Pro  
 152 1 5 10 15  
 153 Gly Leu Lys Pro Asp Leu Thr Gly Thr Ser Lys Ser Tyr Val Arg Ser  
 154 20 25 30  
 155 Leu  
 158 <210> SEQ ID NO: 14  
 159 <211> LENGTH: 5  
 160 <212> TYPE: PRT ✓  
 161 <213> ORGANISM: Fragment ✓  
 163 <400> SEQUENCE: 14  
 164 Arg Arg His Lys Arg  
 165 1 5  
 167 <210> SEQ ID NO: 15  
 168 <211> LENGTH: 4  
 169 <212> TYPE: PRT  
 170 <213> ORGANISM: Fragment ✓  
 172 <400> SEQUENCE: 15  
 173 Arg His Lys Arg  
 174 1  
 176 <210> SEQ ID NO: 16  
 177 <211> LENGTH: 47  
 178 <212> TYPE: DNA  
 179 <213> ORGANISM: Artificial Sequence  
 181 <220> FEATURE:  
 182 <223> OTHER INFORMATION: Primer  
 184 <400> SEQUENCE: 16  
 185 ttttcctttt gcggcgctt tcatcaacgc ttctgcaggg acccctc  
 187 <210> SEQ ID NO: 17  
 188 <211> LENGTH: 56  
 189 <212> TYPE: DNA

47

## RAW SEQUENCE LISTING

PATENT APPLICATION: US/09/667,947

DATE: 01/07/2003

TIME: 16:31:43

Input Set : A:\07039-298001.txt

Output Set: N:\CRF4\01072003\I667947.raw

```

190 <213> ORGANISM: Artificial Sequence
192 <220> FEATURE:
193 <223> OTHER INFORMATION: Primer
195 <400> SEQUENCE: 17
196 gtccatgCGG cccagccggc ccgattaaag agagaggcag aggacctgca ggtggg          56
198 <210> SEQ ID NO: 18
199 <211> LENGTH: 18
200 <212> TYPE: PRT
201 <213> ORGANISM: Fragment /
203 <400> SEQUENCE: 18
204 Val His Ala Ala Gln Pro Ala Arg Leu Lys Arg Glu Ala Glu Asp Leu
205 1          5          10          15
206 Gln Val
209 <210> SEQ ID NO: 19
210 <211> LENGTH: 50
211 <212> TYPE: DNA
212 <213> ORGANISM: Artificial Sequence
214 <220> FEATURE:
215 <223> OTHER INFORMATION: Primer
217 <400> SEQUENCE: 19
218 ttttcctttt gcggccgctt tcatcatcaa cgcttctgca gggaccctc          50
220 <210> SEQ ID NO: 20
221 <211> LENGTH: 59
222 <212> TYPE: DNA
223 <213> ORGANISM: Artificial Sequence
225 <220> FEATURE:
226 <223> OTHER INFORMATION: Primer
228 <400> SEQUENCE: 20
229 gtccatgCGG cccagccggc cgggtggaggc gggtcagagg cagaggacct gcaggtggg          59
231 <210> SEQ ID NO: 21
232 <211> LENGTH: 19
233 <212> TYPE: PRT
234 <213> ORGANISM: Fragment /
236 <400> SEQUENCE: 21
237 Val His Ala Ala Gln Pro Ala Gly Gly Gly Gly Ser Glu Ala Glu Asp
238 1          5          10          15
239 Leu Gln Val
242 <210> SEQ ID NO: 22
243 <211> LENGTH: 16
244 <212> TYPE: PRT
245 <213> ORGANISM: Fragment /
247 <400> SEQUENCE: 22
248 Arg Gly Arg Cys Asn Lys Lys Gly Glu Gln Gly Met Ser Arg Pro Gly
249 1          5          10          15
251 <210> SEQ ID NO: 23
252 <211> LENGTH: 9
253 <212> TYPE: PRT
254 <213> ORGANISM: Fragment /
256 <400> SEQUENCE: 23

```

## RAW SEQUENCE LISTING

PATENT APPLICATION: US/09/667,947

DATE: 01/07/2003

TIME: 16:31:43

Input Set : A:\07039-298001.txt

Output Set: N:\CRF4\01072003\I667947.raw

```

257 Arg Gly Arg Cys Asn Lys Lys Gly Glu
258 1 5
260 <210> SEQ ID NO: 24
261 <211> LENGTH: 26
262 <212> TYPE: DNA
263 <213> ORGANISM: Artificial Sequence
265 <220> FEATURE:
266 <223> OTHER INFORMATION: Primer
268 <400> SEQUENCE: 24
269 aaaactgcag actcaaaggt caatgc 26
271 <210> SEQ ID NO: 25
272 <211> LENGTH: 30
273 <212> TYPE: DNA
274 <213> ORGANISM: Artificial Sequence
276 <220> FEATURE:
277 <223> OTHER INFORMATION: Primer
279 <400> SEQUENCE: 25
280 cccttaatta atatacagat ctcaacggat 30
282 <210> SEQ ID NO: 26
283 <211> LENGTH: 31
284 <212> TYPE: DNA
285 <213> ORGANISM: Artificial Sequence
287 <220> FEATURE:
288 <223> OTHER INFORMATION: Primer
290 <400> SEQUENCE: 26
291 ccatcgataa tggccttcta caaagataac c 31
293 <210> SEQ ID NO: 27
294 <211> LENGTH: 33
295 <212> TYPE: DNA
296 <213> ORGANISM: Artificial Sequence
298 <220> FEATURE:
299 <223> OTHER INFORMATION: Primer
301 <400> SEQUENCE: 27
302 ccatcgataa tgagccatcc caagggaagt agg 33
304 <210> SEQ ID NO: 28
305 <211> LENGTH: 33
306 <212> TYPE: DNA
307 <213> ORGANISM: Artificial Sequence
309 <220> FEATURE:
310 <223> OTHER INFORMATION: Primer
312 <400> SEQUENCE: 28
313 ccatcgataa tgaacagaga acatcttatg att 33
315 <210> SEQ ID NO: 29
316 <211> LENGTH: 29
317 <212> TYPE: DNA
318 <213> ORGANISM: Artificial Sequence
320 <220> FEATURE:
321 <223> OTHER INFORMATION: Primer
323 <400> SEQUENCE: 29

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**RAW SEQUENCE LISTING ERROR SUMMARY**  
**PATENT APPLICATION: US/09/667,947**

DATE: 01/07/2003  
TIME: 16:31:44

Input Set : A:\07039-298001.txt  
Output Set: N:\CRF4\01072003\I667947.raw

**Please Note:**

Use of n and/or Xaa have been detected in the Sequence Listing. Please review the Sequence Listing to ensure that a corresponding explanation is presented in the <220> to <223> fields of each sequence which presents at least one n or Xaa.

Seq#:2; Xaa Pos. 2

Seq#:35; Xaa Pos. 5,6,7

Seq#:36; N Pos. 1,2,3,4,5,6,7,8,9,10,11,12,15,16,17,20

**VERIFICATION SUMMARY**PATENT APPLICATION: **US/09/667,947**

DATE: 01/07/2003

TIME: 16:31:44

Input Set : **A:\07039-298001.txt**Output Set: **N:\CRF4\01072003\I667947.raw**

L:17 M:271 C: Current Filing Date differs, Replaced Current Filing Date  
L:46 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:2 after pos.:0  
L:396 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:35  
L:400 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:35  
L:401 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:35 after pos.:0  
L:418 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:36  
L:422 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:36  
L:426 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:36  
L:430 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:36  
L:434 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:36  
L:438 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:36  
L:442 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:36  
L:446 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:36  
L:450 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:36  
L:454 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:36  
L:458 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:36  
L:462 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:36  
L:466 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:36  
L:467 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:36 after pos.:0